

**LISTING OF THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-24 (Canceled)

25. (Previously Presented) A process for producing a surface-modified layer system comprising a substrate having a surface and a self-assembled monolayer (SAM) anchored to at least part of said surface, wherein said SAM is comprised by aryl or rigid alicyclic moiety species, said process comprising the steps of:

- a) providing a SAM anchored to a substrate, wherein said SAM is polymorphic having at least first and second structural forms; and
- b) thermally treating said SAM so as to change said SAM from said first structural form to said second structural form.

26. (Previously Presented) A process according to claim 25, which process includes the preliminary steps of:

- a) providing a said substrate and a compound having a selected said aryl or rigid alicyclic moiety species and an anchor moiety bondable to said substrate so as to exert a directive force with respect to the molecular orientation of said compound, said selected aryl moiety species having a plurality of different parameters affecting the energy-balance of the SAM, wherein at least two of said parameters exert opposing directive forces arising from the molecule-substrate interaction which have a substantially competitive effect on said energy-balance which results in polymorphism of said SAM; and
- b) bonding of said compound to said substrate.

27. (Previously Presented) A thermo-lithographic process comprising a process according to claim 25 wherein a desired pattern is transferred to said SAM using said thermal treatment so as to change selectively part of said SAM from said first structural form to said second structural form.
28. (Previously Presented) A process according to claim 27 wherein in said pattern transferring step there is used a thermal treatment applied selectively to only part of the SAM in accordance with a negative image of said desired pattern so that the thermally treated areas are rendered more stable compared to the untreated ones.
29. (Previously Presented) A process according to claim 27 wherein said thermal treatment is selected from: direct contact with a heated body or a heated fluid; and exposure to thermal radiation.
30. (Previously Presented) A process according to claim 29 wherein said radiation is pulsed.
31. (Previously Presented) A process according to claim 27 wherein said SAM is raised to a temperature of at least 100°C.
32. (Previously Presented) A process according to claim 27 wherein the thermal treatment is carried out in a substantially inert environment.
33. (Previously Presented) A process according to claim 27 wherein said thermal treatment is formed and arranged for parallel-form pattern transfer.
34. (Previously Presented) A process according to claim 27 wherein said thermal treatment is formed and arranged for serial-form pattern transfer.

35. (Previously Presented) A process according to claim 27, which process includes the further step of developing the thermally treated SAM by subjecting it to further processing so as to substantially modify selectively one of: thermally treated and non-thermally treated parts of the SAM.
36. (Previously Presented) A surface-modified layer system comprising a substrate having a surface and a self-assembled monolayer (SAM) anchored to at least part of said surface, wherein said SAM is comprised by a aryl or rigid alicyclic moiety species in a substantially stable structural form derived, in situ, by thermal treatment from a less stable structural form.
37. (Previously Presented) A system according to claim 36 wherein said substrate comprises a conductor or semiconductor material.
38. (Currently Amended) A system according to claim 36 wherein said ~~material~~ substrate comprises at least one of gold, silver, chromium, manganese, vanadium, tungsten, molybdenum, zirconium, titanium, platinum, aluminium, iron, steel, indiumphosphide, gallium arsenide, and alloys and oxides thereof, including glasses.
39. (Previously Presented) A system according to claim 36 wherein said SAM is comprised by a compound which comprises an anchor moiety, and an optionally substituted, aryl (including hetero-aryl) moiety.
40. (Previously Presented) A system according to claim 39 which includes a spacer moiety between the anchor moiety and the aryl moiety.
41. (Previously Presented) A system according to claim 40 wherein said anchor moiety is selected from thio, seleno, carboxyl, phosphonate, phosphate and hydroxyl.

42. (Previously Presented) A system according to claim 36 wherein said aryl or rigid alicyclic moiety is selected from phenyl, biphenyl and terphenyl, and fused ring systems selected from anthracyl and naphthyl, and hetero-aryl selected from bipyridyl, terpyridyl, thiophenyl, bithienyl, terthienyl and pyrrolyl and alicyclic moieties selected from bridged alicyclic systems such as bi-, tri-, or tetracycloalkanes.
43. (Previously Presented) A system according to claim 42 wherein said aryl moiety has at least one substituent selected from halogen, carboxy, trifluoromethyl, thiol, hydroxy, cyano, amino, nitro, C1 to C6 alkyl, and carbonyl.
44. (Previously Presented) A system according to claim 40, wherein said spacer group is selected from C1 to C12, saturated or unsaturated hydrocarbon, other structures containing at least one of an ether linkage, and an amide group, and up to C12 cycloalkyl.
45. (Currently Amended) A system according to claim [[36]] 44 wherein said substrate comprises gold, said anchor moiety comprises thiol, and the ~~hydrocarbon~~ spacer group is selected from C2, C4, C6, C8, and C10, alkyl.
46. (Currently Amended) A system according to claim [[36]] 44 wherein said substrate comprises silver, said anchor moiety comprises thiol, and the ~~hydrocarbon~~ spacer group is selected from C1, C3, C5, C7, and C9, alkyl.
47. (Previously Presented) A system according to claim 36 wherein said SAM is a 4-(4'-Methyl-biphenyl-4-yl)-alkane-1-thiol.
48. (Previously Presented) A system according to claim 47 wherein said alkane is C1 to C10 alkane.

49. (New) The system according to claim 36, wherein said SAM further comprises domain sizes that exceed  $10^5$  square nanometers ( $\text{nm}^2$ ).